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| 10/657,179 | 09/09/2003 | Chan Ho Park | MRE-0063 | 1631 |
| 34610 | 7590 | 04/06/2006 | EXAMINER | |
| FLESHNER & KIM, LLP P.O. BOX 221200 CHANTILLY, VA 20153 | | | NGUYEN, JIMMY | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2829 | |

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/657,179

Applicant(s)

PARK ET AL.

Examiner

Jimmy Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-17 is/are allowed.
- 6) ☒ Claim(s) 1-13 and 18-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Argument

The amendment filed 1/17/06 has been carefully reviewed with the following effect;

The amendment is in mood of the new ground of rejection

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 –13 and 18 – 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita et al (US6,445,203) in view of Tilton et al (US 2004/0051545)

As to claim 1, Yamashita et al disclose (fig 1) a device for compensating heat generation in a module IC (2) test handler configured to receive cooling fluid from an exterior source (130) and spray the cooling fluid onto module ICs (2) during testing, wherein the device is attached to a press unit (72) including a frame and a plurality of push bars (74, 30) arranged at fixed intervals on a front surface of the frame for pushing edges of modular ICs (2) mounted on carriers to connect the modular ICs to test sockets, the device comprising.

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at least one supporting member (122) provided adjacent to the press unit (72) and having a cooling fluid flow passage (118) formed therein for flow of cooling fluid.

at least one cooling fluid spraying unit (121, 118) configured to spray the cooling fluid supplied through the cooling fluid flow passage (118) toward faces of module ICs (2).

However, Yamashita et al are silent on the cooling fluid flow toward ICs in an oblique direction with respect to a central plane of the at least one cooling fluid spraying unit.

On the other hand, Tilton et al teach (figs 15,16) the cooling fluid (from the spraying unit 40 has the first surface 50) flow toward ICs (18) in an oblique direction.

It would have been obvious to one having an ordinary skill in the art at the time of the invention was made to modify the teaching of Yamashita et al with the cooling fluid that flow the cool air toward the ICs in the oblique direction for the purpose of reducing noise due to air pressure and does not restrict the height of other components mounted on the motherboard.

As to claims 2, 22, Yamashita et al disclose (fig 1) the device as claims 1, 21 respectively wherein the at least one cooling fluid spraying unit (130) comprises a plurality of cooling fluid spraying units (121).

As to claims 3, 23, Yamashita et al disclose (fig 1) the device as claims 1, 21 respectively wherein the at least one supporting member comprises a pair of supporting

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members (122), each having a cooling fluid flow (plurality of COLD inlet underneath the tray) passage formed therein.

As to claim 4, Yamashita et al disclose (fig 1) the device as claimed 3, wherein the at least one cooling fluid spray unit (121) extends between the pair of supporting members (122).

As to claim 5, Yamashita et al disclose (fig 1) the device as claimed 3, wherein the at least one cooling fluid spraying unit (130) comprises a plurality of cooling fluid spraying units (122) which each extend between the pair of supporting member (122).

As to claims 6, 24, Yamashita et al disclose (fig 1) the device as claims 3, 23 respectively wherein each of the at least one cooling fluid spraying unit comprises:

a nozzle member having ends connected to the cooling fluid flow passages in the at least one pair of supporting members (122) so as to be in communication therewith and arranged be adjacent push bars (72), the nozzle member having at least one cooling fluid spraying hole.

As to claims 7, 25, 34, Yamashita et al disclose (fig 1) the device as claims 6, 24, 32 respectively wherein the nozzle member comprises a plurality of cooling fluid spray holes (110) form at fixed intervals in a longitudinal direction of the nozzle member

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and directed away in a circumferential direction from a central plane the nozzle member forms, and wherein the plurality of cooling fluid spray holes is configured to spray the cooling fluid guided through the nozzle member toward the modular ICs (2) in an oblique direction.

As to claims 8, 26, Yamashita et al disclose (fig 1) the device as claims 7, 25 respectively wherein the plurality of cooling fluid spray holes (110) are arranged in a plurality of pairs.

As to claims 9, 27, Yamashita et al disclose (fig 1) the device as claims 7, 21 respectively wherein the cooling fluid flow passage in each of the at least one supporting member (122) is divided into a plurality of fluid flow passages (the support member is having plurality of holes for the fluid to come out) by at least one partition extending in a lateral direction.

As to claim 10, Yamashita et al disclose (fig 1) the device as claimed 9, wherein the cooling fluid flow passage in each of the at least one supporting member (122) includes three cooling fluid flow passages divided by two partitions respectively.

As to claims 11, 28, Yamashita et al disclose (fig 1) the device as claims 10, 27 respectively wherein the three passages comprise an upper flow passage, a middle flow passage, and a lower flow passages and wherein the upper flow passage is in

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communication with end portion of the nozzle members and the lower flow passage has an inlet configured to receive the cooling fluid from an exterior.

As to claims 12, 29, Yamashita et al disclose (fig 1) the device as claims 11, 28 respectively wherein the at least one cooling fluid spraying unit (121) each comprise a nozzle member, and wherein the partitions have a plurality of connection holes provided at fixed intervals for flow of the cooling fluid introduced thereto through the lowest flow passage, the middle flow passage, and the upper flow passage.

As to claims 13, 30, Yamashita et al disclose (fig 1) the device as claims 12, 29 respectively wherein ends of nozzle members and the connection holes in the partitions are staggered with respect to one another.

As to claims 18, 33, Yamashita et al disclose (fig 1) the device as claims 1, 32 respectively wherein the at least one supporting member is arranged in parallel to the press unit (72).

As to claims 19, 31, Yamashita et al disclose (fig 1) the device as claims 1, 21 respectively wherein the at least one cooling fluid spray unit comprises a plurality of cooling fluid spray units, each comprising a nozzle member configured to be interposed between respective push bars of the press unit and extending parallel thereto.

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As to claims 21, 32, 35, Yamashita et al disclose (fig 1) a modular IC test handler, comprising:

A plurality of test sockets (40);

A press unit (72) including a frame and a plurality of push bars (74,30) arranged at fixed intervals on a front surface of the frame for pushing edges of modular lcs (2) mounted on carriers to connect the modular lcs to the plurality of test sockets (40); and

A device for compensating for heat generation from the modular lcs during testing, the device comprising:

at least one supporting member (122) provided adjacent to the press unit (72) and having a cooling fluid flow passage (118) formed therein for flow of cooling fluid.

at least one cooling fluid spraying unit (121, 118) configured to spray the cooling fluid supplied through the cooling fluid flow passage (118) toward faces of module ICs (2).

However, Yamashita et al are silent on the cooling fluid flow toward ICs in an oblique direction with respect to a central plane of the at least one cooling fluid spraying unit.

On the other hand, Tilton et al teach (figs 15,16) the cooling fluid (from the spraying unit 40 has the first surface 50) flow toward ICs (18) in an oblique direction.

It would have been obvious to one having an ordinary skill in the art at the time of the invention was made to modify the teaching of Yamashita et al with the cooling fluid that flow the cool air toward the lcs in the oblique direction for the purpose of reducing

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noise due to air pressure and does not restrict the height of other components mounted on the motherboard.

Allowable Subject Matter

1. Claims 14 – 17 are allowed

The prior arts of record are silent on all the limitations combine with an upper portion of each of the at least one pair of supporting members is attached to one end of each of the nozzle member and comprises: a lower supporting member having a plurality of pass through holes formed at fixed intervals and configured to receive therein one end portion of each of the nozzle member; and an upper supporting member joined to an upper portion of the lower supporting member and having pass through holes provided at position corresponding to the pass through holes in the lower supporting member, wherein a sealing device is provided between each of the pass through holes in the lower supporting member and each of the pass through holes in the upper supporting member.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Nguyen whose telephone number is (703) 306-5858. The examiner can normally be reached on M- f from 9 to 5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ramtez Nestor, can be reached on 571-272-2034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JN.
March 30, 2006


VINH NGUYEN
PRIMARY EXAMINER
A.U. 2829
03/31/06